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## Two New Species of *Draba* (Brassicaceae): *D. mieheorum* from Tibet and *D. sagasteguii* from Peru

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**ABSTRACT.** The new Tibetan *Draba mieheorum* and Peruvian *D. sagasteguii* (Brassicaceae) are described and illustrated. The distinguishing characters separating each species from its nearest relatives are discussed.

**Key words:** Brassicaceae, China, *Draba*, Peru, Tibet.

Recent collections of Brassicaceae from Tibet (China) and Peru were sent to me for determination. Each collection included a new species of *Draba* named below in honor of its principal collector(s).

***Draba mieheorum*** Al-Shehbaz, sp. nov. TYPE: China. Tibet (Xizang): Upper Rongshar valley, S-facing slope, *Juniperus indica* scrub, 4330 m, 28°10'N, 86°27'E, 31 Aug. 1999, Georg & Sabine Miehe, with K. Koch 99-182-25 (holotype, MO). Figure 1.

Herba perennis caespitosa, ca. 11 cm alta. Folia basalia rosulata, sessilia, oblonga vel lanceolata, 1–2 cm × 3–5 mm; pilis brevistipitatis vel subsessilis, stellatis, 4–6-radiatis praeditis, 0.1–0.4 mm diam.; folia caulina 3 vel 4. Racemi 4–7-flori, ebracteati; pedicelli fructiferi divaricati, 8–12 mm longi, tomentosi. Sepala 3–3.5 mm longa; petala alba, spatulata, 6–7 × 3–5.5 mm; ovula 26–30. Fructus oblongo-lineari, compressi, 15–18 × 3–3.5 mm, pubescentes, pilis stellatis, basi et apice subacuti; stylus 1–1.5 mm longus, pilosus; semina ovata, biseriata, ca. 1 × 0.7 mm longa.

Perennial, caespitose herbs ca. 11 cm tall, sparsely tomentose throughout except on petals; caudex unbranched, ca. 5 mm diam., covered with leaf remains of previous years; trichomes stellate, minutely stalked to subsessile, 0.1–0.4 mm diam., cruciform or 4- to 6-rayed, often 1 or 2 rays either forked or 3-branched; stems erect, branched above, sparsely pubescent. Basal leaves densely rosulate, persistent, sessile, oblong to lanceolate, 1–2 cm × 3–5 mm, tomentose with stellate trichomes, base cuneate, margin few-toothed or subentire, apex acute; cauline leaves 3 or 4, sessile, oblong, similar to basal leaves, acropetally smaller. Racemes 4- to 7-flowered, ebracteate, elongated in fruit; fruiting pedicels 8–12 mm, divaricate, straight, tomentose

all around with stellate trichomes. Sepals oblong, purplish green, 3–3.5 × 1–1.3 mm, erect, abaxially pubescent; petals white, spatulate, 6–7 × 3–5.5 mm, apex rounded; claw 2–2.5 mm; filaments 3.5–4 mm; anthers oblong, 0.6–0.8 mm; ovules 26 to 30 per ovary. Fruit oblong-linear, 15–18 × 3–3.5 mm, not appressed to rachis, compressed parallel to septum, not twisted; valves uniformly pubescent with stellate trichomes, obscurely veined basally, base and apex subacute; style 1–1.5 mm, pilose; seeds brown, ovate, biseriate, ca. 1 × 0.7 mm.

*Draba mieheorum* is most closely related to *D. subamplexicaulis* C. A. Meyer, a species distributed in China (Qinghai, Shaanxi, Sichuan, and Xinjiang Provinces), Kazakhstan, Kyrgyzstan, Mongolia, Russia, and Uzbekistan (Pohle, 1925; Schulz, 1927; Zhou et al., 2001). Both species are caespitose perennials with few-leaved stems, sessile cauline leaves, white flowers, numerous seeds per fruit, and oblong-linear flattened fruits. *Draba mieheorum* is easily distinguished by having exclusively stellate trichomes throughout the plant, non-ciliate basal leaves, non-amplexicaul cauline leaves, divaricate fruiting pedicels, sepals 3–3.5 mm long, apically rounded petals 6–7 mm long, oblong anthers 0.6–0.8 mm long, and pubescent styles. By contrast, *D. subamplexicaulis* has stellate, stalked forked, and simple trichomes on the stems and fruiting pedicels, often ciliate basal leaves, usually subamplexicaul cauline leaves, erect-ascending fruiting pedicels, sepals 2–2.7 mm long, apically emarginate petals 3–5 mm long, ovate anthers 0.4–0.5 mm long, and glabrous styles.

***Draba sagasteguii*** Al-Shehbaz, sp. nov. TYPE: Peru. La Libertad: Pataz, alrededores de Minera La Estrella (Huaylillas), 4000 m, 8°10.8'S, 77°18.2'W, 23 Aug. 2002, Abundio Sagástegui A. & M. Zapata 17046 (holotype, MO; isotypes not seen, F, HAO). Figure 2.

Herba perennis suffruticosa, 30–37 cm alta; caules lignosi, 2–3 mm diam. Folia caulina numerosa, persistentia, sessilia, oblonga, oblongo-elliptica, vel oblongo-ovata, 8–12 × 4–5 mm, dense tomentosa; pilis brevistipitatis vel

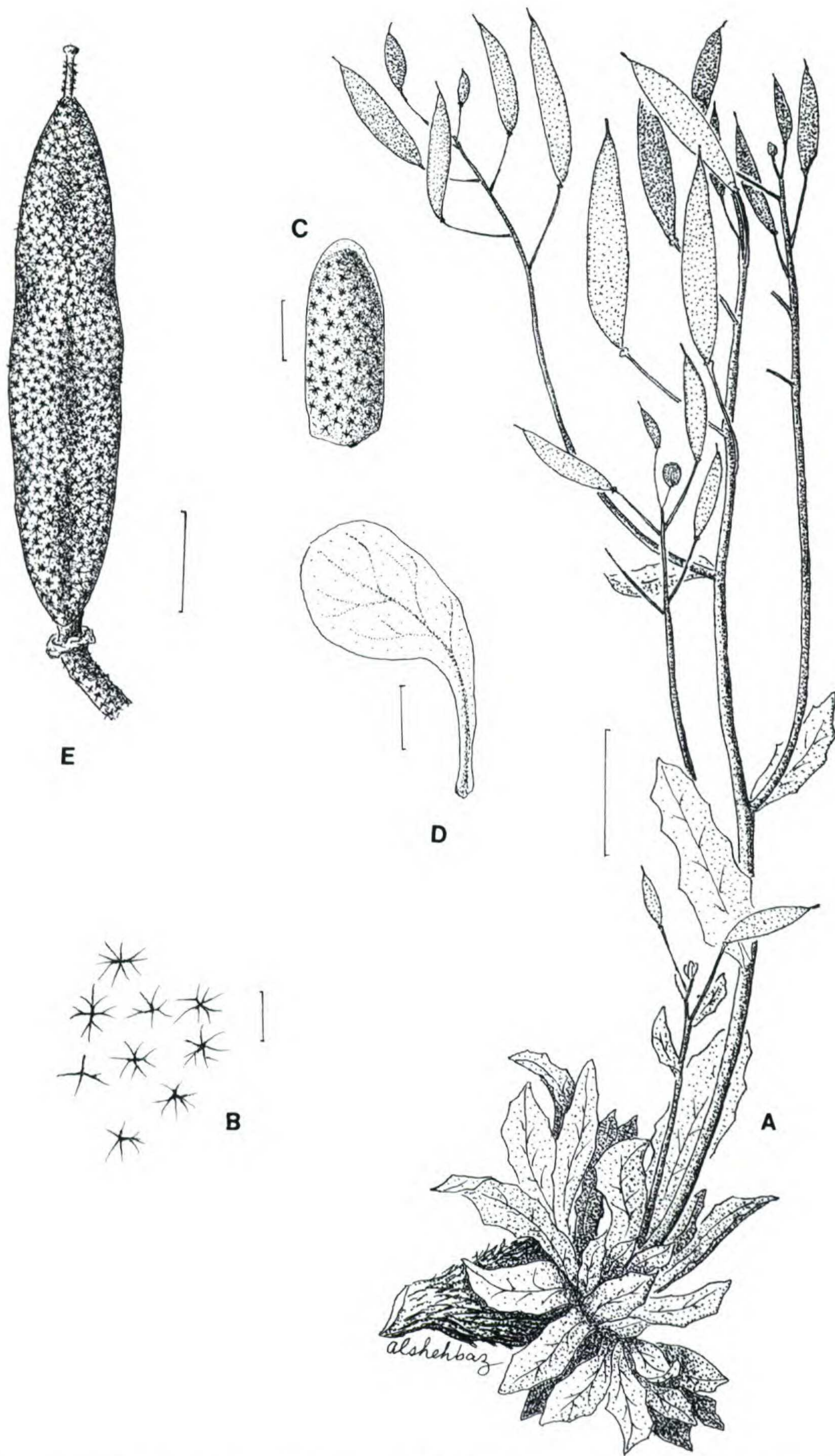


Figure 1. *Draba mieheorum* Al-Shehbaz. —A. Plant. —B. Leaf trichomes. —C. Sepal. —D. Petal. —E. Fruit. Scale: A = 1 cm, B = 0.3 mm, C–E = 1 mm. Drawn by Al-Shehbaz from the holotype (*G. & S. Miehe & K. Koch 99-182-25*, MO).

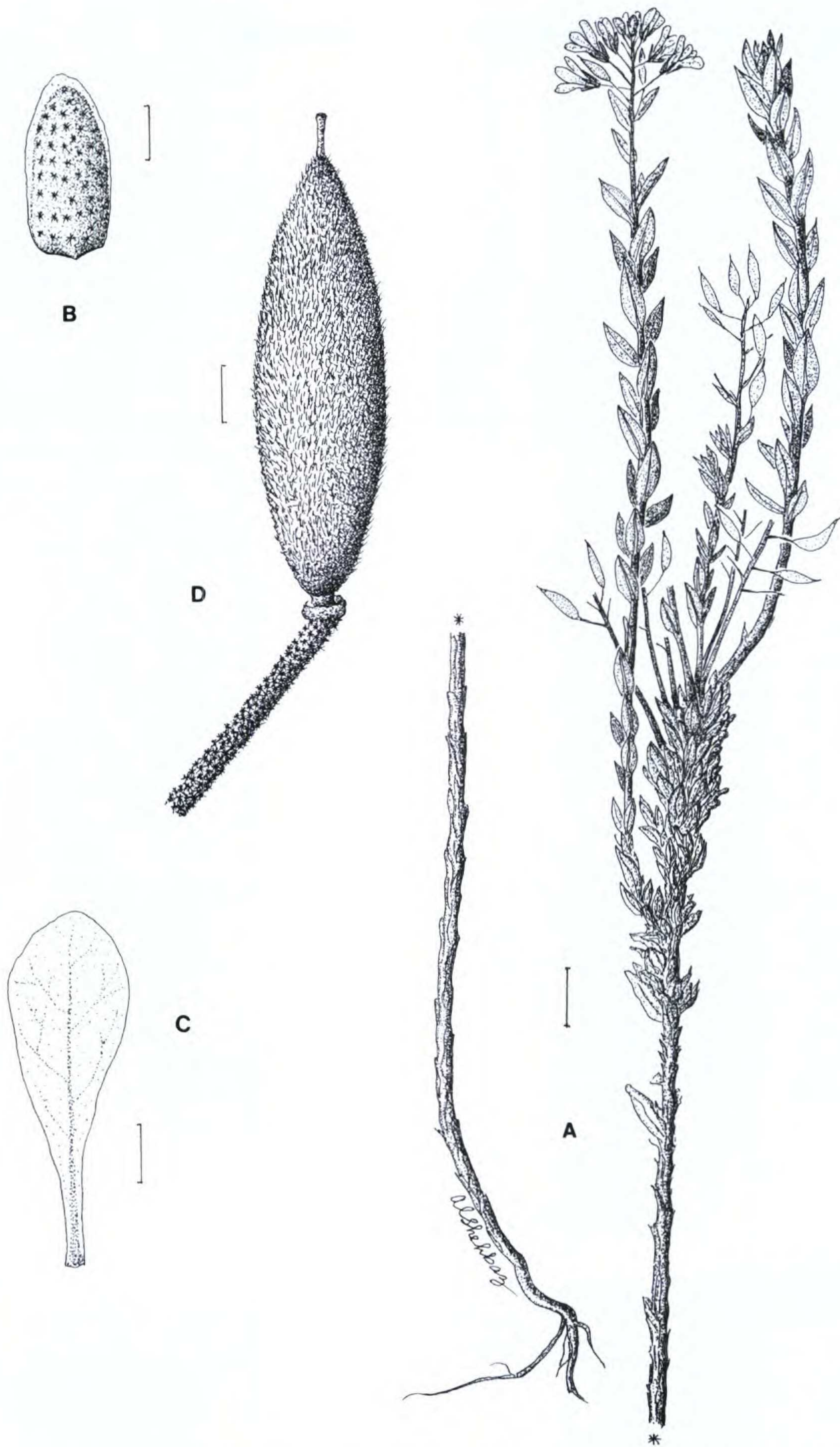


Figure 2. *Draba sagasteguii* Al-Shehbaz. —A. Plant. —B. Sepal. —C. Petal. —D. Fruit and pedicel. Scale: A = 1 cm, B–D = 1 mm. Drawn by Al-Shehbaz from the holotype (Sagástegui & Zapata 17046, MO).

subsessilis, stellatis, 0.2–0.4 mm diam., radiis 2- vel 3-fidibus. Racemi 9–25-flori, ebracteati vel basi bracteati; pedicelli fructiferi divaricati, stellati, 4–8 mm longi. Sepala 3–3.5 mm longa; petala flava, spatulata, 6–7 × 2–2.5 mm; ovula 16–22. Fructus anguste oblongi vel oblongo-lanceolati, compressi, 8–12 × 2–2.5 mm, pubescentes, pilis simplicibus vel furcatis praeditis; stylus 0.7–1 mm longus; semina compressa, ovato-oblonga, 1–1.4 × 0.6–0.8 mm.

Suffrutescent perennial herbs 30–37 cm tall; stems woody, simple at least basally, simple or few-branched above or throughout, usually several from base, 2–3 mm diam., lower nodes with thickened basal remnants from leaf bases. Leaves all cauline, numerous, persistent even after drying, crowded, sessile; petiole absent; leaf blade oblong, oblong-elliptic, to oblong-ovate, 8–12 × 4–5 mm, densely tomentose with short-stalked to sessile stellate trichomes 0.2–0.4 mm diam., with 2- or 3-fid rays, simple trichomes completely lacking, base cuneate, margin entire, apex acute; midvein prominent abaxially. Racemes 9- to 25-flowered, corymbose, elongated in fruit; bracts absent or usually subtending lowermost 2 or 3 flowers; fruiting pedicels divaricate, straight, stellate pubescent, 4–8 mm long. Sepals purplish green, erect, oblong, caducous, 3–3.5 × 1–1.5 mm, sparsely pubescent with stellate trichomes, subequal at base, margin narrowly membranous; petals yellow, spatulate, short-clawed, 6–7 × 2–2.5 mm, apex rounded; filaments yellow, 3.5–5 mm long; anthers ovate, ca. 0.6 mm long; nectar glands confluent, subtending bases of all filaments; ovules 16 to 22 per ovary. Fruit narrowly oblong to oblong-lanceolate, strongly compressed, not twisted, 8–12 × 2–2.5 mm; valves densely pubescent with a mixture of simple or sessile furcate trichomes, midvein inconspicuous; style slender, 0.7–1 mm long; stigma capitate, entire; seeds reddish brown, compressed, ovate-oblong, 1–1.4 × 0.6–0.8 mm.

*Draba sagasteguii* is closely related to the Colombian and Ecuadorian *D. confertifolia* Turczaninow, *D. pycnophylla* Turczaninow, and *D. hallii* Hooker f. (Schulz, 1927), all of which grow primarily in the páramos, and the last also grows in Peru. All four species have woody stems, sessile cauline leaves, racemes that are ebracteate or only

the lowermost few flowers bracteate, purplish green oblong sepals, spatulate petals, confluent nectar glands, divaricate fruiting pedicels, similar fruit shape and size, and compressed seeds 1–1.5 mm long. However, *D. sagasteguii* is easily distinguished from these species by having yellow instead of white flowers and an adaxial leaf surface with exclusively stellate trichomes instead of a mixture of stellate, forked, and simple or exclusively simple trichomes. From *D. confertiflora*, *D. sagasteguii* can also be distinguished by having smaller flowers (sepals 3–3.5 mm vs. (3.2–)4–5(–6) mm long, petals 6–7 × 2–2.5 mm instead of (6–)8–11(–12) × 3–5 mm long) and shorter styles (0.7–1 vs. 2–5 mm long). From both *D. hallii* and *D. pycnophylla*, *D. sagasteguii* is also separated by having entire instead of dentate leaves (1- to 4-toothed on each side) and larger flowers. In both *D. hallii* and *D. pycnophylla* the sepals are 1.8–2.5 mm long (instead of 3–3.5 mm in the new species), and the petals are 3.5–5 mm long (instead of 6–7 mm). *Draba hallii* often has racemes bracteate throughout, whereas in *D. sagasteguii* the raceme is ebracteate or only the lowermost few flowers are bracteate. Finally, in *D. pycnophylla* the fruits are pubescent with exclusively stellate trichomes, whereas those of *D. sagasteguii* are pubescent with simple and forked trichomes, similar to those of *D. hallii* and *D. confertiflora*.

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